

Engineering & Computer Science

BITS

FACULTY NEWSLETTER ♦ DECEMBER 1996/ JANUARY 1997 ♦ VOLUME 4/ NUMBER 2

Dr. Nabil Esmail Selected as New Dean of Engineering and Computer Science

University of Saskatchewan Chemical Engineering professor appointed for five-year term starting July 1, 1997

The Faculty of Engineering and Computer Science begins a new chapter this summer as it welcomes Dr. Nabil Esmail as the Faculty's fifth Dean. In joining Concordia, Dr. Esmail ends his long and illustrious career with the University of Saskatchewan, where he has been Chair of the Department of Chemical Engineering from 1982 to 1994.

Dr. Esmail holds both a BSc and MSc (1964) in Mechanical Engineering and Aeromechanics from Moscow State University (MSU). As a graduate student, his research focused on examining the level of turbulence of NASA wing profiles in the wind tunnel of the Institute of Mechanics at MSU. After teaching for two years as a lecturer at Ain-Shams University in Cairo, Egypt he returned to Moscow State for his Ph.D. in Applied Mathematics (1972), where he investigated thin liquid film flows and their mechanical interaction with adjacent gas flows. After a year of teaching at Ain-Shams University as Assistant Professor, Dr. Esmail emigrated to Canada and joined the Department of Chemical Engineering and Applied Chemistry of the University of Toronto as a Research Associate in 1973.

His appointment as Assistant Professor with the University of Saskatchewan in 1977 marked the beginning of his twenty year relationship with this institution. Over the course of this period, Dr. Esmail has been an active member of the university community, chairing several financial and academic planning committees that have helped shape

both his Department and the University as a whole.

Dr. Esmail is no stranger to Montreal thanks to a six month sojourn here in 1995 at École Polytechnique where he acted as Visiting Professor in the Department of Chemical Engineering.

Dr. Esmail's primary research areas are in the fields of fluid mechanics, computational fluid dynamics, experimental flow measurements and Rheology. His scientific interests lie primarily in fluid flows with interfacial phenomena, such as surface waves and wetting dynamics. Current industrial applications of his research are in liquid coating technology but have recently become more particular to paper coating technology. Dr. Esmail has collaborated with such companies as 3M and the Engelhard Corporation in the U.S. as well as the Pulp and Paper Research Institute of Canada (PAPRICAN), Noranda, and Energy, Mines and Resources Saskatchewan.

He was elected a Fellow of the Chemical Institute of Canada in 1991 and maintains professional membership with the Association of Professional Engineers of Saskatchewan, the Canadian Society for Chemical Engineers, the Chemical Institute of Canada, the American Institute of Chemical Engineering and the Technical Association of Pulp and Paper Industry (TAPPI).



Dr. Esmail was also appointed Chair of the Editorial Board of the Canadian Journal of Chemical Engineering in 1991 and he is the current Chair of the NSERC Chemical and Metallurgical Engineering Grants Selection Committee (1996-1997).

He has published over 80 scientific papers and has secured over one million dollars in research funding. Dr. Esmail has also been a guest lecturer in numerous universities and institutions in Canada, China, Egypt, England, Hungary, Israel and Russia.

On July 1, 1997 he will succeed Dr. Donat J. Taddeo who has been Dean of the Faculty since 1993.

Faculty Extends Co-op Program

As of September 1997, Concordia engineering students in all Faculty Academic Units will benefit from this practical 16 months in industry

The Faculty of Engineering & Computer Science in collaboration with the Institute for Co-operative Education at Concordia University has recently expanded co-op across all of its programs. Now Mechanical, Industrial, Civil, Electrical and Computer Engineering join Computer Science and Building Engineering in offering students the opportunity to acquire invaluable work experience while receiving credits towards their degree.

Continuing requests from local industry helped spur this initiative, with strong support from the Faculty's External Advisory Board (EAB), composed of members from local industry who help guide and advise the Faculty towards forging stronger ties between academia and industry. Members of the Board have fully supported and endorsed this initiative and consider it an essential

ingredient in strengthening industry-university partnership.

This particular co-op format consists of four paid work terms interspersed with academic terms which, when combined, will allow students to acquire 16 months of practical work experience. Unlike standard co-op programs however, the final two work terms are back-to-back, allowing students to maintain their job for eight consecutive months. This not only allows them to better focus on the job at hand but also helps establish stronger relationships with their employers.

A fertile market exists for this expansion as illustrated in the recent awarding of five paid full-year internships to mechanical engineering students in the summer of 1996. These internships were initiated through the EAB and feature such prominent companies as

Pratt & Whitney, Rolls Royce Canada, and Bombardier Inc., Canadair. Although these internships, unlike co-op, were for single experience only, they do in fact indicate that industry is interested in extending these opportunities to students.

With the advent of co-op expansion also comes increased competition for these positions. Students will be accepted into co-op based on their academic standing (GPA comparisons) and interview results since initially there will be a small number of jobs available. Once the base of companies involved increases however, so too will the number of jobs.

It is clear that this expansion will more than likely prove beneficial for the Faculty by simply examining the 97% placement rate the Institute for Co-operative Education has maintained since its inception.

Dr. Paul Fazio Submits Report on Civil/CBS Restructuring

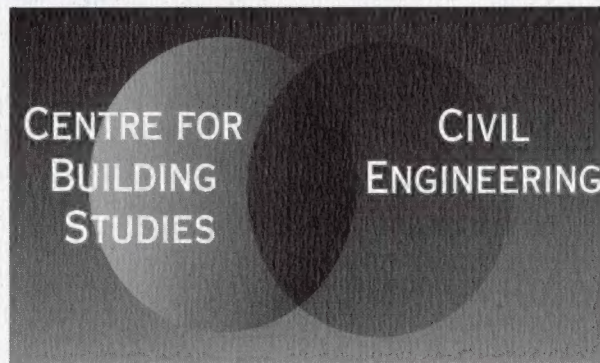
CBS Director and Chair of Civil Engineering puts forth proposal to integrate both academic units

In May, 1996, at the request of Dean Donat J. Taddeo, a mandate for the complementary development of the academic programs and research areas of Concordia's Centre for Building Studies (CBS) and Department of Civil Engineering was given to Dr. Paul Fazio, Director for CBS and Chair of Civil Engineering, by the Provost and Vice-Rector Research, Dr. Jack Lightstone.

In response to the mandate, an integrated plan of action was delivered by Dr. Fazio, and has been approved by a committee consisting of Dean Taddeo and Dr. Lightstone, as well as the Chairs of the External Advisory Board Sub-Committees for CBS and Civil Engineering, Mr. Daniel Gilbert and Mr. Jacques McDonald, respectively.

The proposed plan, which was also approved by both the Department of Civil

Engineering and CBS, ensures that existing undergraduate and graduate programs will be maintained as well as the FCAR Centre de recherche status granted CBS and its unique and distinct role in Canada with regards to Building Engineering. This restructuring will



also help maximize the use of human and physical resources currently available in both units and will help establish a critical plan for future growth in certain areas of specialization.

In addition, this initiative will also define a

specific niche for both units in engineering research in Québec while reinforcing the integrity of its academic programs.

In order to assure the successful direction, planning and integration required for this restructuring, Dr. Fazio was appointed Chair of Civil Engineering for the current academic year and his mandate as Director at CBS was extended through May 31, 1997. The recognition he has acquired in academia and industry throughout Québec and Canada will help the Faculty maintain its ongoing contributions to engineering education in Canada.

As a result of the Review Committee's approval, the integrated plan of action will be submitted to Faculty Council in February and then University Senate in spring 1997. The actual integration of both units should be established no later than June 1, 1997.

External Advisory Board Update



The Faculty's External Advisory Board held a general meeting on October 30, 1996. Here are some of the important issues which were discussed:

- ▶ **Intelligent Building Project:** President of the EAB, Dr. Morrel Bachynski presented a report of the special committee on the Intelligent Building. The EAB endorsed the report and gave its unanimous support to the project for the development of an Intelligent Building which would eventually house the Faculty of Engineering & Computer Science.
- ▶ **Student Internship Program:** The working group for Mechanical Engineering reported that the initiative which allows 3rd year students to participate in this internship program will continue through 1997. To date five students have been matched with industry partners. A further initiative encouraging faculty members to spend their sabbatical leave in industry is underway with one professor already committed to SPAR Aerospace.
- ▶ **Feedback on the Consolidation of CBS and Civil Engineering:** Both working groups from CBS and Civil pledged their support for the possible restructuring of the Department of Civil Engineering and the Centre for Building Studies into one distinct academic unit. Mr. Daniel Gilbert, Vice-President in charge of construction for la Société immobilière du Québec (SIQ) and head of the CBS working group, believes this restructuring will add value to Concordia's presence in these areas. Mr. Jacques McDonald, Vice-President of Franki Canada and head of the Civil Engineering Working Group stated that the restructuring should take into consideration employment statistics for graduates within these two fields of study over the last three to four years and that cooperation with other universities in the development of specific courses is imperative.
- ▶ **ECE Curriculum Review:** The ECE working group helped provide input on the major curriculum revision proposed by the Department. In addition, it provided input on the format and content of professional courses to be offered by the Department and explored means of generating alternate funding for Ph.D. students
- ▶ **Capital Campaign:** Professor Marcel Danis, Vice Rector Institutional Relations, briefed the EAB on the list of priorities for the upcoming Capital Campaign, with particular reference to items involving the Faculty of Engineering & Computer Science.
- ▶ **Nomination Committee Created:** In order to assure the continuity of the EAB and begin to examine the rotation of its members, a Nomination Committee was developed consisting of Mrs. Louise Quesnel, Dr. Stanley Kubina and Mr. Leo Goldfarb.
- ▶ **Academic Planning Process Revealed:** Vice Rector Research and Provost Dr. Jack Lightstone provided EAB members with an overview of Concordia's Academic Planning Process and the role of the Faculty of Engineering & Computer Science in this matter.

NATIONAL ENGINEERING WEEK



March 4-11, 1997 is National Engineering Week across Canada. Last year the Faculty's Student Organizations helped promote this initiative with numerous displays in the Atrium. This year Concordia promises to contribute to engineering

awareness yet again with many new and exciting activities throughout the week. Watch for them! For further information or suggestions please contact Michael Lennane at (514) 848-3073 or via e-mail: mikes@concordia.ca

Enrollments up from 1995-96

January registration continues to draw record number of students

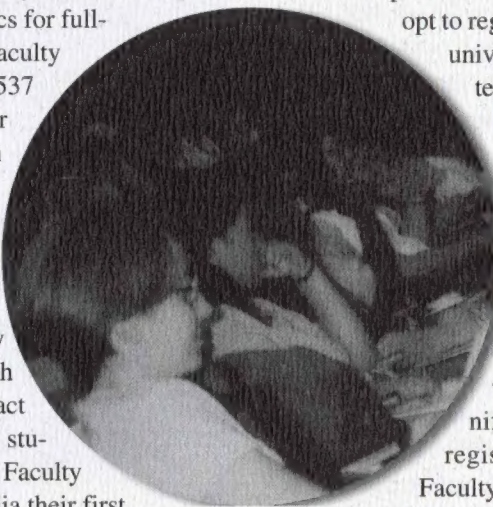
The Faculty is pleased to announce an increase in the number of registered students for the 1996-97 academic year by almost 4% from the previous year. According to admission statistics for full-time students, the Faculty accepted a total of 537 students this year compared to 519 in 1995-96.

More encouraging is the fact that over 55% of students accepted by the Faculty opted to register with Concordia. This in fact illustrates that most students applying to the Faculty are making Concordia their first choice.

On another positive note, 1996 marked the first time since the 1984-85 academic year that the Faculty introduced January registration. This initiative was in direct re-

sponse to the increasing number of CEGEP students graduating in December. Previously, these same students had to wait an entire semester prior to registering in the fall or opt to register with a competing university that offered winter registration. The timeliness of the decision is supported by the fact that 115 additional students registered in January 1997 compared to 1996, marking an increase of almost 50%. Notwithstanding the significant surge in winter registration numbers, the Faculty's fall registration has remained stable and, contrary to initial beliefs, has not decreased.

This increase has not gone unnoticed, with the Faculty having to open several course sections to accommodate these new entrants.



Engineers of

Tomorrow

Conference

On January 23, 1997 Concordia will be hosting the 5th Annual Engineers of Tomorrow Conference (EOTC). This one-day conference, where over 100 young women from local high schools are invited to tour Faculty Labs, view demonstrations and listen to guest speakers share their experiences, attempts to introduce the field of engineering and computer science as a potential academic and career-option to these young students.

for further information please contact the Engineering & Computer Science Student Association (ECA) at (514) 848-7408 or via e-mail : eca@ece.concordia.ca

Concordia to host 1998 Quebec Engineering Games

University will accommodate over 400 engineering students during this 5-day event

In January 1998, Concordia University will host the annual Quebec Engineering Games for the very first time. This competition, which began in 1990 at université de Laval under the guidance of *la commission des facultés d'ingénierie du Québec (COFIQ)*, unites over 400 engineering students from nine different engineering schools across Québec.

Teams, consisting of 45 students, compete against each other in a variety of sporting and academic events over a four to five day period. The academic component is discipline specific with corresponding events in the fields of civil, chemical, electrical, mechanical and computer engineering. A debating competition is also featured, in which student teams showcase their presentation skills and their ability to think quickly under pressure.

Concordia was appointed host for next year's games by virtue of a rotational sys-

tem in which each competing school must act as host at least once. After 1998, Concordia would then conceivably host the 2006 games assuming no new schools join in or existing participants drop out.

Sponsorship for these games is primarily corporate in nature with last year's games receiving \$10,000 from the MATROX Corporation. To help with operating expenses, aid in kind from private sector food and beverage companies is also required and sponsorship recruitment for this event is the sole responsibility of the host school. In response, the Engineering and Computer Science Student Association (ECA) at Concordia is presently assembling a planning committee responsible for the full implementation of the 1998 games with the hopes of making them the best ever.



For further information regarding the Quebec Engineering Games please contact Remo Marini, VP External for the ECA at (514) 848-7408 or via e-mail at eca@ece.concordia.ca

Integrated Circuits Specialist joins Electrical & Computer Engineering Department

In January 1997, Dr. ChunYan Wang became the latest addition to the Department of Electrical & Computer Engineering's Faculty contingent.

Born in Beijing, China, Dr. Wang brings with her a proven track record of research excellence in the field of analog and mixed integrated circuit design. More specifically, Dr. Wang focuses on the use of integrated circuits for image processing.

Receiving her B.Eng in 1982 from Shanghai Jiaotong University in China, Dr. Wang amassed over eight years of work experience prior to beginning her graduate studies. After completing her undergraduate degree she spent three years at the Applied Acoustics Research Institute in Hangzhou before working in the audio-visual division of the Hangzhou Technical College where her principal work focused on the development of pedagogical video tapes for classroom assistance.

In 1988, Dr. Wang travelled to Leipzig, Germany on a Chinese government scholarship. As a visiting scholar, she studied at the University of Leipzig in the area of film making and television.

In 1992, Dr. Wang received her MSc. from l'Université de Paris-Sud in Orsay, France where she specialized in integrated circuits. During this time, Dr. Wang participated in two projects, one involving real-time processing for audio signal restoration with Motorola and another focusing on video compression for the Phillips Electronics Laboratory in France.

During her post-doctoral studies at l'Université de Paris-Sud, Dr. Wang's thesis centered on Analog Cellular Operators for Artificial Vision. Working from the Institut Electronique Fondamentale (IEF) in Orsay, France, her specific research focused on analog computation for a vision chip (retina) with application to automobile detection sensors. This research is part of an ongoing "intelligent automobile" project with France Télécom, whereby smart sensors would enable these vehicles to register external stimuli such as road signs, road conditions and potential obstacles in an attempt to reduce the potential for human error in driving conditions. During her Ph.D. studies, Dr. Wang also assumed the role of Teaching Assistant from 1994-95, where she conducted digital circuit experiments with physics students.



Dr. Wang joined Concordia University on a three-year contract as Assistant Professor in 1996. She is currently establishing her research network and indicated that a group of researchers at Université Laval are conducting similar work and that the possibility for collaborative projects with this group may exist in the near future. Dr. Wang's primary teaching expertise is in the area of integrated circuits.



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Summer Employment Opportunity for Students

Come join the National Research Council of Canada (NRC), Canada's pre-eminent research and development organization.

Summer research positions are available in the fields of:

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- Core Sciences
- Construction Technologies
- Infrastructural Technologies
- Manufacturing Technologies

This program offers paid summer positions in a challenging and intellectually stimulating environment, with access to superior equipment, facilities and expertise. Information brochures are posted in all Faculty Departments. To obtain further information and electronic application forms please visit the NRC Web site at <http://www.nrc.ca>

Application Deadline: January 31, 1997

FACULTY NEWS

Centre for Building Studies

Dr. Radu Zmeureanu appointed to AQME Administrative Council

In September 1996, **Dr. Radu Zmeureanu** was elected a member of la *Conseille d'administration de l'association Québécoise de la maîtrise de l'énergie* (AQME) for a two-year term.

Dr. Ted Stathopoulos Awarded Contract with SNC-Lavalin

Dr. Ted Stathopoulos was recently awarded a \$13,000 contract with SNC-Lavalin on a project involving the use of Concordia's Wind Tunnel. Specifically, Dr. Stathopoulos along with **Dr. Pat Saathoff** will be examining the effects of wind on a geomembrane liner used for the containment of power plant waste material in Ireland

Electrical and Computer Engineering

Dr. Tho Le-Ngoc appointed Fellow of IEEE

In December 1996, **Dr. Tho Le-Ngoc** was appointed Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for his numerous contributions to the field of wireless communications. Dr. LeNgoc is the current Director of Concordia's Centre for Signal Processing and Communications (CENSIPCOM).

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is a quarterly publication of the Faculty's Communications Office distributed free of charge to the members of the Engineering & Computer Science community.

Faculty Announcement

Three Faculty Members Opt for Early Retirement

The Faculty would like to thank **Dr. Taddeus Krepec** from Mechanical Engineering, **Dr. Wojciech Jaworski** from Computer Science and **Dr. Otto Schwelb** from Electrical & Computer Engineering for their longstanding contributions to the Faculty in the areas of teaching, research and community service. All three Faculty members officially retired December 31, 1996 after accepting the Faculty and Librarian Retirement Incentive Plan (FALRIP).

External Advisory Board Announcement

Mr. Louis Chenêvert Steps Down from Board

Mr. Louis Chenêvert, Vice-President Operations for Pratt & Whitney Canada and head of the Board's Mechanical Engineering sub-committee will no longer maintain his function as member of the Board effective January 1997. This departure comes as a direct result of Mr. Chenêvert's promotion as Executive Vice-President Operations for Pratt & Whitney in the United States. The Faculty would like to congratulate Mr. Chenêvert on his promotion and thank him for his significant contributions as one of the founding members of the Board.

Mechanical Engineering

Students Receive Prestigious Awards

Ms. Diana Crisante and **Mr. Stephen Neemeh** have been awarded the Pratt & Whitney Canada Award valued at \$1,000. Ms. Crisante was also awarded the SCIEIX Award for an additional \$1,000. The Special Corporate Awards Program for Canada Scholars was launched in the Spring of 1991 by Industry Canada in order to encourage Canada Scholars pursuing an interest in science-based innovation. Only 10 students were selected to receive these awards which are sponsored by leading corporations to promote excellence and research in specific fields of science and engineering.

Dr. Ramesh Rajagopalan honoured

Dr. Ramesh Rajagopalan has been awarded the prestigious Ralph R. Teetor Educational Award for outstanding contribution to engineering education from the Society of Automotive Engineers. This marks the third time such an award has been bestowed upon a member of the Department.

Dr. M.O.M. Osman appointed Fellow of ASME

Dr. M.O.M. Osman was named a Fellow of the American Society of Mechanical Engineers (ASME) for his significant contributions to the field. Dr. Osman is also a member of the Canadian Society for Mechanical Engineers and is the founder and past Chair of the Canadian Council for the Theory of Machines and Mechanisms.

Composition & Computer Layout:
B. Michael Lennane

BITS welcomes submissions from the members of the Faculty community

Please send submissions, comments and letters to: Michael Lennane LB1009-1
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